



**POLYTECHNIQUE
MONTRÉAL**

LE GÉNIE
EN PREMIÈRE CLASSE

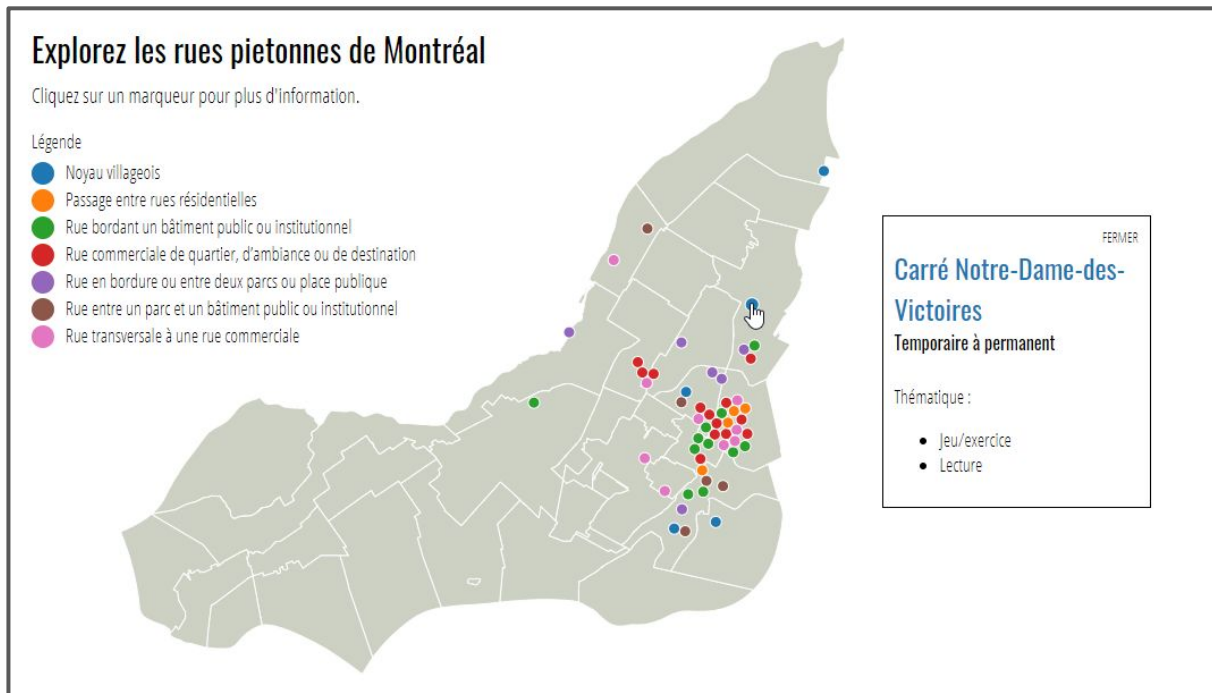
Guide TP5

INF8808 | Summer 2022

Version JavaScript

Objective

- The objective of this TP is to create an interactive scatter map using open data in JSON and GeoJSON formats.



Data

Pedestrian streets of Montreal

- The data represent the pedestrian streets of Montreal, as well as the geographic limits of each borough of Montreal
- `src/assets/data/`
- The pedestrian streets dataset contains :
 - **MODE_IMPLANTATION**
 - **NOM_PROJET**
 - **OBJECTIF_THEMATIQUE**
 - **TYPE_SITE_INTERVENTION**
- The geographic dataset contains:
 - **NOM**
 - **CODEID**

Data preprocessing

Purpose: Reorganize some parts of the data so that they can be more easily used with D3.js

In preprocessing.js :

1. `convertCoordinates`
2. `simplifyDisplayTitles`

```
{  
  "type": "FeatureCollection",  
  "crs": {...},  
  "features": [  
    {  
      "type": "Feature",  
      "properties": {  
  
        "ID_PROJET": "RP0001",  
  
        "TYPE_AXE": "Avenue", ...  
      },  
      "geometry": {...},  
      "x": 523.9884058026364,  
      "y": 287.12224173489085  
    }, ...  
  ]  
}
```

Scatter map

We must draw Montreal and its neighborhoods as well as the markers

In viz.js :

1. *colorDomain*
2. *mapBackground* and *showMapLabel*
3. *mapMarkers*

Scatter map

Remarks

- When a neighborhood is hovered over by the mouse, its name appears in the center of its polygon
 - `path.centroid`
- The colors of the dots depend on the type of site they represent
- Circles appear with a white outline and increase in size slightly when hovered
- The circles should automatically move so that there are no overlaps between them
 - `helper.js`

```
/**
 * Initializes the simulation used to place the circles
 *
 * @param {object} data The data to be displayed
 * @returns {*} The generated simulation
 */
export function getSimulation (data) {
  return d3.forceSimulation(data.features)
    .alphaDecay(0)
    .velocityDecay(0.75)
    .force('collision',
      d3.forceCollide(5)
    )
    .strength(1)
}

/**
 * Update the (x, y) position of the circles'
 * centers on each tick of the simulation.
 *
 * @param {*} simulation The simulation used to position the circles.
 */
export function simulate (simulation) {
  simulation.on('tick', () => {
    d3.selectAll('.marker')
      .attr('cx', (d) => d.x)
      .attr('cy', (d) => d.y)
  })
}

/**
```

helper.js: contains
functions that move
circles to avoid collisions

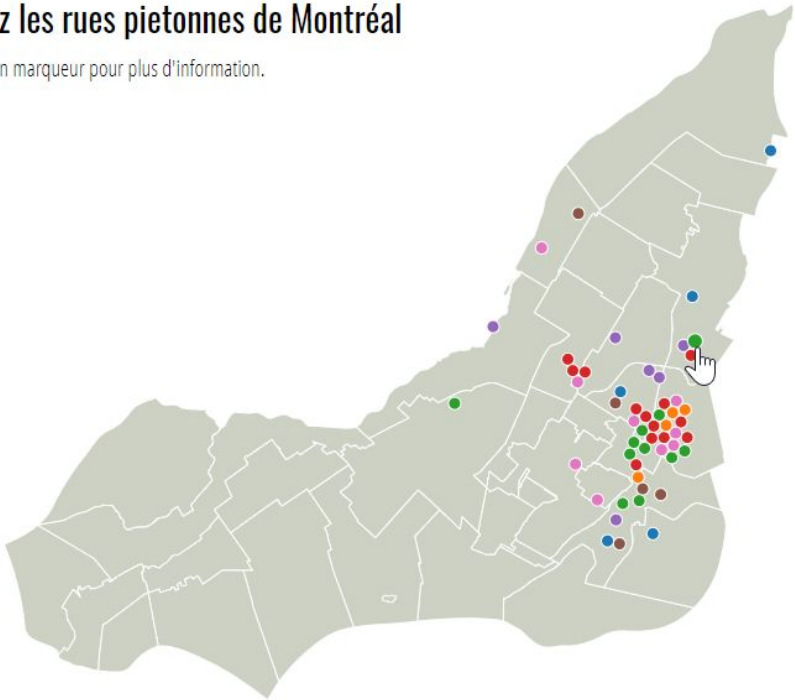
Scatter map

Initial result

- Each circle gets bigger on hover:

Explorez les rues piétonnes de Montréal

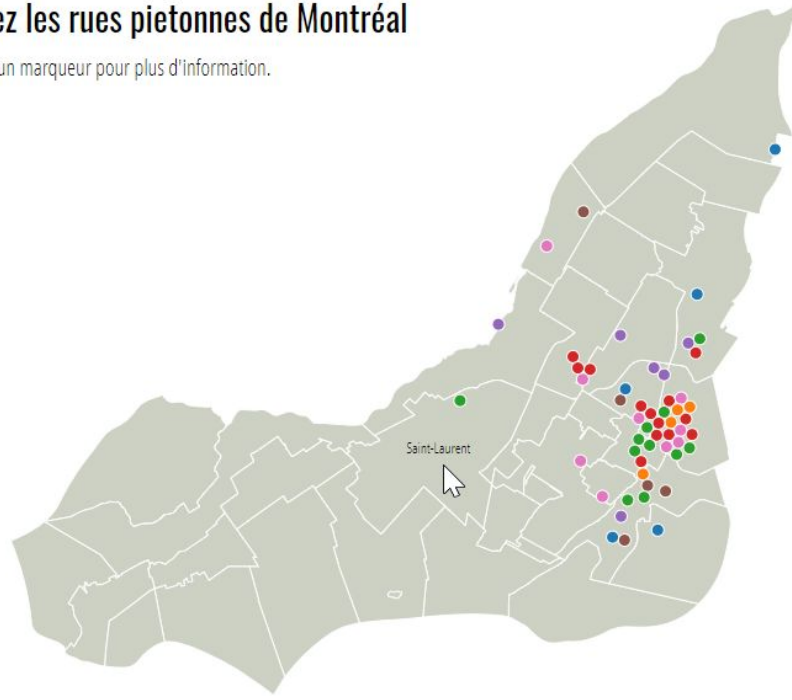
Cliquez sur un marqueur pour plus d'information.



- Neighborhood name appears in its center :

Explorez les rues piétonnes de Montréal

Cliquez sur un marqueur pour plus d'information.



Legend

- legend.js
- Like in TP4, we use the library 'd3-svg-legend'

Result :

Explorez les rues piétonnes de Montréal

Cliquez sur un marqueur pour plus d'information.

Légende

- Noyau villageois
- Passage entre rues résidentielles
- Rue bordant un bâtiment public ou institutionnel
- Rue commerciale de quartier, d'ambiance ou de destination
- Rue en bordure ou entre deux parcs ou place publique
- Rue entre un parc et un bâtiment public ou institutionnel
- Rue transversale à une rue commerciale

Information panel

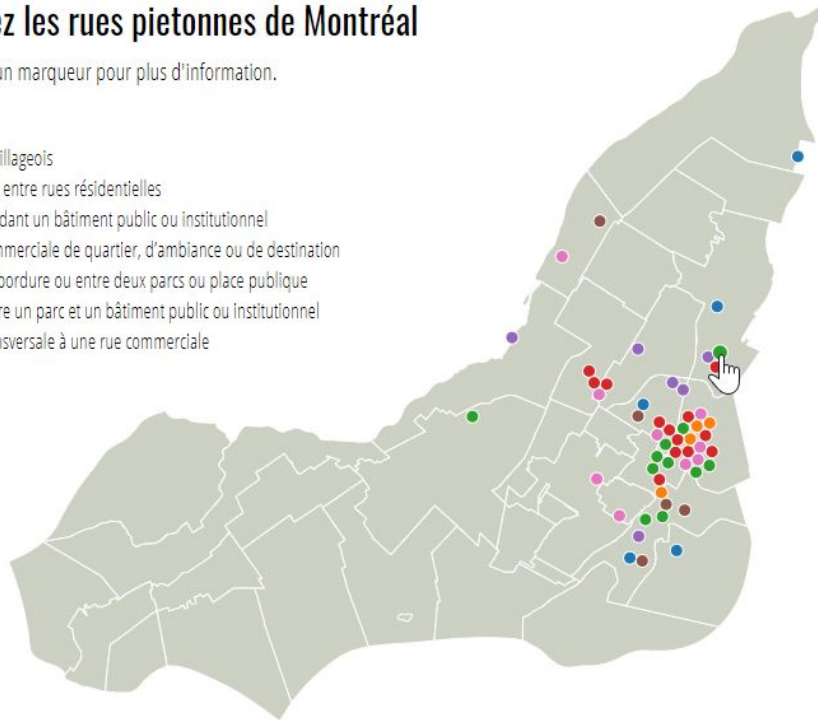
Illustrated

Explorez les rues piétonnes de Montréal

Cliquez sur un marqueur pour plus d'information.

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FERMIER

Patio Culturel

Temporaire saisonnière

Thématique :

- Photo
- Jeu/exercice
- Insolite
- Lecture

Information panel

- A panel giving information on a given point should be displayed on the right when clicked
- `hover.js` :
 1. ***setTitle***
 2. ***setMode***
 3. ***setTheme***

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